

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA17 | Offchurch and Cubbington
Operational assessment (SV-004-017)
Sound, noise and vibration

November 2013

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Department
for Transport

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Appendix SV-004-017

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Operation assessment	004
Community forum area:	Offchurch and Cubbington	017

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1 Introduction

1.1 Structure of the sound, noise and vibration appendices

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these details the methodology used (Appendix SV-001-000) and relates to the sound, noise and vibration assessment for all community forum areas (CFA).
- 1.1.2 For the Offchurch and Cubbington community forum area (CFA17), the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-017);
 - construction sound, noise and vibration (Appendix SV-003-017); and
 - operational sound, noise and vibration (Appendix SV-004-017) (this appendix).
- 1.1.3 The outcomes of this assessment are summarised in Volume 2: CFA17 Report, Chapter 11 Sound, Noise and Vibration.
- 1.1.4 Maps referred to throughout the sound, noise and vibration appendices are contained in the Volume 5 sound, noise and vibration map book.
- 1.1.5 This appendix presents the likely noise and vibration impacts, effects and significant effects arising from the operation of the Proposed Scheme for the Offchurch and Cubbington area on:
- people, primarily where they live ('residential receptors') in terms a) individual dwellings and b) on a wider community basis, including any shared community spaces; and
 - community facilities such as schools, hospitals, places of worship, and also commercial properties such as offices and hotels, collectively described as 'non-residential receptors' and 'quiet areas'.
- 1.1.6 The assessment of likely impacts, effects and significant effects from operational noise and vibration on agricultural, community, ecological or heritage receptors and the assessment of tranquillity are presented in the following documents within Volume 5:
- Agriculture, forestry and soils Appendix AG-001-017
 - Community Appendix CM-001-017
 - Ecology Appendix EC-001-03
 - Heritage Appendix CH-003-017
 - Landscape and Visual Appendix LV-001-017

1.2 Evaluation of impacts and effects

- 1.2.1 This appendix provides a quantitative assessment of operational noise and vibration impacts and effects and a qualitative assessment of likely significant effects, based on the impacts and effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.

- 1.2.2 Indirect effects arising from permanent changes in traffic patterns on the existing road and rail networks as a consequence of the Proposed Scheme are also reported in this appendix, where they would occur within the study area as defined in Volume 5 Appendix SV-001-000.
- 1.2.3 Route-wide impacts, effects and significant effects associated with noise or vibration from the operation of the Proposed Scheme are reported in Volume 3.
- 1.2.4 Off-route effects of noise or vibration arising from the operation of the Proposed Scheme, including those likely to arise from permanent changes in traffic patterns on roads or railways outside of the study area for direct effects are reported in Volume 4.
- 1.2.5 In undertaking the assessment of sound, noise and vibration, consistent with EIA Regulations and emerging National Planning Practice Guidance¹ a differentiation between impacts effects, adverse effects and significant effects is made. Further information is provided in Volume 5: Appendix SV001-000.
- 1.2.6 The assessment of impacts has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The Assessment Locations employed in this assessment are presented on map series Sv-02 in the CFA17 Volume 5 sound, noise and vibration map book.

¹ National Planning Practice Guidance – Noise <http://planningguidance.planningportal.gov.uk> ; refer to the table summarising noise exposure hierarchy

2 Scope, assumptions and limitations

2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1 and in Appendix SV-001-000. As part of the engagement with local authorities through the Planning Forum Sub Group (Acoustics), information regarding any specific local planning guidance in respect of noise and vibration has been requested. Whilst no information has been received for this study area via the Planning Forum Sub Group (Acoustics), the following local policy guidance on noise and vibration has been identified:

- Warwick District Council - Local Plan - 1996 to 2011.

2.1.2 This guidance has been considered as part of formulating the detailed application of the impact and significance criteria set out in Volume 5: Appendix SV-001-000.

2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners via the Planning Forum Sub Group - Acoustics, is set out in Volume 1, Volume 8.

2.2.2 Engagement with communities has been via the Community Forums, as set out in Volume 1. In respect of sound, noise and vibration the following discussions have taken place:

- general discussions in respect of local issues, including possible ways to avoid and mitigate the potential impacts of noise or vibration
- September / October 2012; a specific presentation about sound, noise and vibration with discussion afterwards with one of the project team specialists;
- November / December 2012; specific request for the Community Forum to propose baseline sound monitoring locations;
- January / February 2013; feedback to the Community Forum on any proposed baseline monitoring locations; and
- verbal / written response to questions on sound, noise and vibration.

2.3 Methodology

2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001-000/1), is clarified in a number of areas by the SMR addendum (Volume 5: Appendix CT-001-000/2). Further information is contained in Volume 5: Appendix SV-001-000.

2.4 Assumptions

2.4.1 Route-wide assumptions are outlined in Volume 1, Section 8, and are further detailed in Volume 5: Appendix SV-001-000. Local assumptions that apply to the assessment of operational sound noise and vibration within this CFA are set out in Volume 2: Report 17.

2.5 **Local limitations**

- 2.5.1 In this area, there are a number of locations where the land or property owners did not permit baseline sound level monitoring to be undertaken at their premises. However, sufficient information has been obtained to undertake the assessment. Further information is provided in Volume 5: Appendix SV-002-017.

3 Environmental baseline

3.1 Existing baseline

3.1.1 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors. The existing and future baseline airborne sound levels derived from these measurements are included within Table 1. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-017.

3.1.2 The majority of receptors adjacent to the line of the route are not currently subject to appreciable vibration and therefore vibration at all receptors has been assessed using the absolute vibration criteria as described in Volume 5: Appendix SV-001-000.

3.2 Future baseline

3.2.1 The assessment is based upon the predicted change in sound levels that result from the Proposed Scheme. The assessment initially considered a reasonable worst case (that would overestimate the change in levels) by assuming that sound levels would not change from the existing baseline year of 2012/2013. Where significant effects were identified on this basis, the effects have been assessed using the baseline year of 2026 to coincide with the proposed start of passenger services. The future baseline is for the sound environment that would exist in 2026 without the Proposed Scheme.

4 Effects arising during operation

4.1 Introduction

4.1.1 The assessment is reported first for ground-borne sound and vibration and then for airborne sound. Under each of these headings, the results of the quantitative identification of impacts and effects are presented. This is followed by the identification of significant effects and the evidence used to support these conclusions.

4.1.2 The structure of this assessment report is:

- Avoidance and mitigation measures
- Quantitative identification of impact and effects
 - Ground-borne sound and vibration
 - Residential
 - Non-residential
 - Airborne sound
 - Residential
 - Non-residential
- Assessment of impacts and effects
 - Residential receptors: direct effects – dwellings
 - Residential receptors: direct effects – communities
 - Residential receptors: indirect effects
 - Non-residential receptors: direct effects
 - Non-residential receptors: indirect effects
 - Cumulative effects from the proposed scheme and other committed development.

4.2 Avoidance and mitigation measures

4.2.1 These are set out in Volume 2: Report 17.

4.3 Quantitative identification of impacts and effects





4.3.1 No properties fall within the scoping distance for ground-borne noise and vibration within this area, therefore assessment has not been undertaken for this area

Airborne sound: direct impacts and effects

4.3.2 The direct effects from the operation of the Proposed Scheme as well as any new, amended or altered roads or railway lines, which are identified as part of the scheme, are presented in Table 1.

4.3.3 The assessment information, impact criteria and significance criteria for the assessment of the incorporated mitigation case at residential and non-residential receptors are presented in Table 1. The results should be considered in conjunction with the information contained in map series Sv-02 in the CFA17 Volume 5 sound, noise and vibration map book.

4.3.4 Explanation of the Table 1 information is provided in Appendix SV001-000, with the following additional notes.

	Where the significant effect column is marked, then a significant effect is identified at the referenced group of dwellings, or individual residential or non-residential receptor.
	Yellow denotes a minor impact at a residential building – a change is of 3-5 dB
	Orange denotes a moderate impact at a residential building – a change is of 5-10 dB
	Red denotes a major impact at a residential building – a change is of >10 dB
*	Day - $L_{pAeq,07:00-23:00}$
**	Night - $L_{pAeq,23:00-07:00}$
***	Max - L_{pAFmax} In the Proposed Scheme only column, two values are presented. The first is the value for the HS2 mitigated train and the second is the value for the TSI compliant train. For further information refer to Volume 5: Appendix SV-001-000.
****	Where the Proposed Scheme modifies an existing source, i.e. road or railway realignments, the <i>Proposed Scheme only</i> level in the table includes the sound from the modified source. In this situation the <i>Do something (Opening year baseline + Year 15 traffic)</i> level has been corrected so as to not double count the sound associated with the road or railway on its new and existing alignment.
A	Adverse effect
B	For non-residential receptors further detail about the type of effect is set out in the text of Appendix SV-001-000.
CD	Committed Development. The value in brackets in the number of impacts represented column is the value with the committed development.
G	(G1) Theatres, large auditoria and concert halls, (G2) Sound recording and broadcast studios, (G3) Places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (G4) Schools, colleges, hospitals, hotels and libraries, and (G5) Offices and general commercial premises
H	High existing ambient sound level. Defined as $>65dB_{L_{Aeq, day}}$ and/or $>55dB_{L_{Aeq, night}}$
L	Low existing ambient sound level. Defined as $<42dB_{L_{Aeq, day}}$ and/or $<32dB_{L_{Aeq, night}}$
LD	Landscape receptor
NA	Generally no adverse effect
NI	The receptor is predicted to qualify for mitigation, which shall be provided to the specification defined in the Noise Insulation (Railways and other Guided Rail Systems) Regulations 1996
R	Residential
RM	Residential mooring
S	Significant adverse effect
U	Unacceptable adverse effect
#	A change of 3dB or greater has been identified however, the assessment methodology only defines an impact where the absolute sound level from the Proposed Scheme is greater or equal to 50 dB $L_{pAeq, 23:00-07:00}$ during the daytime or 40 dB $L_{pAeq, 07:00-23:00}$ at night. At the receptor denoted the absolute level condition is not met and therefore no impact is identified.
~	The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000)..
\$	A change of 3dB or greater has been identified however, the impact methodology for non-residential receptors includes a screening criteria for G3 building use of 50 dB $L_{pAeq,07:00-23:00}$, for G4 building use 55 dB $L_{pAeq,07:00-23:00}$ and 45 dB $L_{pAeq,23:00-07:00}$, for G5 building use 55 dB $L_{pAeq,07:00-23:00}$. At the receptor denoted the screening criteria is not met and therefore no impact is identified. Further

information is provided in Volume 5: Appendix SV-001-000.

- ^ The impact methodology has either identified an impact at a receptor which based upon further qualitative information does not give rise to a significant effect.

Table 1: Operational airborne sound level, noise impacts and effects

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
212346	Leicester Lane, Leamington Spa	49	41	56/59	51	50	65	52	50	1	0	A	5	R	T	-	-	-	-	
213140	Cross Lane, Cubbington	37	28	49/52	55	45	43	55	45	0	0	NA	17	R	T	-	-	-	-	
213190	Coventry Road, Cubbington	44	36	54/57	58	53	64	58	53	0	0	NA	17	R	T	-	-	-	-	
213309	Rugby Road, Cubbington	43	35	52/55	59	58	68	59	58	0	0	NA	18	R	T	H	-	-	-	
213416	Rugby Road, Cubbington	40	31	53/56	65	64	69	65	64	0	0	NA	26	R	T	H	-	-	-	
213490	Pinehurst, Cubbington	50	43	58/61	59	47	55	59	47	0	0	A	6	R	T	-	-	-	-	
213631	Rugby Road, Cubbington	48	41	58/61	59	47	55	59	47	0	0	A	19	R	T	-	-	-	-	
213706	Cotton Mill Spinney, Cubbington	47	39	57/60	54	51	57	54	51	1	0	NA	10	R	T	-	-	-	-	
213764	Thorn Stile Close, Cubbington	48	39	59/62	46	43	54	49	44	3	1	NA	8	R	T	-	-	-	-	#
213855	Three Cornered Close, Cubbington	47	38	58/61	58	48	59	58	48	0	0	NA	14	R	T	-	-	-	-	
213956	Cotton Mill Spinney, Cubbington	45	36	56/59	50	40	54	51	41	1	1	NA	30	R	T	-	-	-	-	
214082	Church Lane, Cubbington	42	33	55/58	59	47	55	59	47	0	0	NA	3	R	T	-	-	-	-	
214129	New Street, Cubbington	42	34	53/56	48	41	51	48	41	1	0	NA	7	R	T	-	-	-	-	
214169	The Grange, Cubbington	42	35	53/56	37	33	43	42	35	5	2	NA	19	R	T	L	-	-	-	#
214212	The Grange, Cubbington	41	33	53/56	45	38	48	46	39	2	1	NA	8	R	T	-	-	-	-	
214243	The Grange, Cubbington	41	33	53/56	45	38	48	46	39	1	1	NA	11	R	T	-	-	-	-	
214280	Cross Lane, Cubbington	40	32	52/55	51	41	41	51	42	0	0	NA	15	R	T	-	-	-	-	

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
214747	Hillcrest, Leamington Spa	38	30	51/54	61	47	68	61	47	0	0	NA	25	R	T	-	-	-	-	
214812	High Street, Cubbington	37	29	50/53	61	47	68	61	47	0	0	NA	18	R	T	-	-	-	-	
215041	Ladycroft, Leamington Spa	38	29	50/53	61	47	68	61	47	0	0	NA	35	R	T	-	-	-	-	
215309	New Street, Cubbington	39	30	51/54	48	41	51	48	41	0	0	NA	15	R	T	-	-	-	-	
215365	Knightley Close, Leamington Spa	38	30	51/54	56	42	63	56	42	0	0	NA	35	R	T	-	-	-	-	
215404	Price Road, Leamington Spa	38	29	49/52	51	41	41	51	41	0	0	NA	53	R	T	-	-	-	-	
215612	Broadway, Leamington Spa	40	32	52/55	59	59	64	59	59	0	0	NA	52	R	T	H	-	-	-	
215919	Broadway, Leamington Spa	41	32	54/57	55	45	48	55	45	0	0	NA	33	R	T	-	-	-	-	
215976	Broadway, Leamington Spa	39	31	52/55	56	42	63	56	42	0	0	NA	51	R	T	-	-	-	-	
216179	Pinehurst, Cubbington	41	32	54/57	50	40	47	51	41	0	0	NA	8	R	T	-	-	-	-	
216265	Church Hill, Cubbington	41	33	55/58	53	36	36	53	36	0	1	NA	10	R	T	-	-	-	-	
216343	Austen Court, Cubbington	45	36	57/60	43	33	37	45	36	3	3	NA	14	R	T	L	-	-	-	#
216416	Church Hill, Cubbington	42	33	55/58	45	28	31	46	33	1	6	NA	3	R	T	L	-	-	-	
216506	New Street, Cubbington	40	32	52/55	58	41	38	58	41	0	0	NA	18	R	T	-	-	-	-	
216690	Coventry Road, Cubbington	50	40	62/65	48	35	46	51	40	3	5	A	1	R	T	-	-	-	-	~
231349	Welsh Road, Offchurch	50	41	63/66	61	43	50	61	45	0	2	A	6	R	T	-	-	-	-	
231757	Fosse Way, Offchurch	49	42	51/54	54	49	56	54	50	0	0	A	3	R	T	-	-	-	-	
232415	Welsh Road, Offchurch	55	46	70/73	56	38	45	58	47	3	9	A	1	R	T	-	-	-	-	~
232441	Welsh Road, Offchurch	51	43	57/60	54	49	56	55	50	2	1	A	3	R	T	-	-	-	-	
233947	School Hill, Offchurch	45	36	61/64	55	52	63	55	52	0	0	NA	2	R	T	-	-	-	-	
233982	School Hill, Offchurch	44	36	58/61	67	64	75	67	64	0	0	NA	6	R	T	H	-	-	-	

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
234209	Village Street, Offchurch	46	37	61/64	47	39	47	49	40	2	2	NA	15	R	T	-	-	-	-	
234251	Welsh Road, Offchurch	46	37	60/63	50	42	54	51	43	1	1	NA	5	R	T	-	-	-	-	
234310	Welsh Road, Offchurch	46	37	61/64	50	42	54	51	43	1	1	NA	6	R	T	-	-	-	-	
234354	Welsh Road, Cubbington	46	37	63/66	62	45	61	62	46	0	1	NA	3	R	T	-	-	-	-	
234364	Welsh Road, Cubbington	47	38	65/68	55	51	69	56	51	1	0	NA	5	R	T	-	-	-	-	
234390	Welsh Road, Cubbington	45	36	63/66	65	48	61	65	48	0	0	NA	1	R	T	H	-	-	-	
234433	Mill Lane, Cubbington	51	42	68/71	44	34	41	52	42	8	9	A	1	R	T	-	-	-	-	~
234521	Rugby Road, Weston Under Wetherley	42	33	52/55	44	32	40	46	35	2	3	NA	2	R	T	L	-	-	-	#
234564	Rugby Road, Cubbington	59	47	63/67	59	47	55	59	47	0	1	A	4	R	T	-	-	-	-	
234577	Rugby Road, Weston Under Wetherley	39	31	50/53	49	37	45	49	37	0	1	NA	1	R	T	-	-	-	-	
234674	Rugby Road, Weston Under Wetherley	38	30	47/50	54	42	50	54	42	0	0	NA	1	R	T	-	-	-	-	
234681	Rugby Road, Cubbington	46	38	56/59	64	52	60	64	52	0	0	NA	2	R	T	-	-	-	-	
234744	Welsh Road, Offchurch	48	39	62/65	50	42	54	52	44	2	1	NA	6	R	T	-	-	-	-	
234760	Welsh Road, Offchurch	48	39	63/66	58	50	59	59	50	0	0	NA	2	R	T	-	-	-	-	
234851	Village Street, Offchurch	47	38	58/61	59	51	58	59	51	0	0	NA	4	R	T	-	-	-	-	
234863	Long Itchington Road, Offchurch	50	41	62/65	56	51	55	57	51	1	0	A	4	R	T	-	-	-	-	
234899	Long Itchington Road, Offchurch	54	44	63/66	51	46	50	56	48	4	2	A	3	R	T	-	-	-	-	~
234937	Long Itchington Road,	57	48	61/64	51	46	50	58	50	7	4	A	3	R	T	-	-	-	-	~

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
	Offchurch																			
235066	Hunningham Road, Offchurch	55	46	68/71	49	39	46	56	47	7	8	A	1	R	T	-	-	-	-	~
235115	Hunningham Road, Offchurch	51	42	65/68	50	39	43	54	44	4	5	A	2	R	T	-	-	-	-	~
235121	Hunningham Road, Offchurch	58	49	70/73	46	34	39	58	49	13	15	A	1	R	T	-	-	-	-	~
235139	Hunningham Road, Offchurch	51	42	65/68	50	39	43	54	43	3	5	A	1	R	T	-	-	-	-	~
235157	Hunningham Road, Offchurch	48	39	61/64	41	31	39	48	39	8	8	NA	2	R	T	L	-	-	-	#
235796	Welsh Road, Offchurch	57	49	65/68	66	48	55	66	50	0	2	A	1	R	T	H	-	-	-	
235805	Fosse Way, Offchurch	58	50	65/68	66	65	67	66	65	0	0	A	4	R	T	H	-	-	-	
235834	Burnt Heath Farm, Offchurch	52	42	61/64	53	35	32	54	42	2	7	A	2	R	T	-	-	-	-	~
235841	Long Itchington Road, Offchurch	51	43	58/61	65	47	41	65	47	0	0	A	2	R	T	H	-	-	-	
236006	Fosse Way, Offchurch	46	37	58/61	57	51	62	57	51	0	0	NA	4	R	T	-	-	-	-	
901034	Ufton Vale Farmlands 01	60	51	73/76	44	32	42	60	51	17	19	-	-	LD	-	-	-	-	-	
901036	Ufton Vale Farmlands 04	47	38	60/63	41	43	50	48	44	7	1	-	-	LD	-	-	-	-	-	
213190	Coventry Road, Cubbington (Car Dealer)	44	36	54/57	58	53	64	58	53	0	0	B	1	G5	T	-	-	-	-	
213190	Walsh House, Coventry Road, Cubbington (Office)	44	36	54/57	58	53	64	58	53	0	0	B	1	G5	T	-	-	-	-	
213706	Waverley Equestrian Training Centre, Coventry Road, (Training)	47	39	57/60	54	51	57	54	51	1	0	B	1	G4	T	-	-	-	-	
213956	Coventry Road, Cubbington (Office)	45	36	56/59	50	40	54	51	41	1	1	B	1	G5	T	-	-	-	-	

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
214812	Cubbington Brewery, Queen Street, Cubbington (Brewery)	37	29	50/53	61	47	68	61	47	0	0	B	1	G5	T	-	-	-	-	
214812	Queen Street, Cubbington (Shopping)	37	29	50/53	61	47	68	61	47	0	0	B	1	G5	T	-	-	-	-	
215612	Cubbington Village Hall, Broadway, Cubbington (Hall)	40	32	52/55	59	59	64	59	59	0	0	B	1	G3	T	-	-	-	-	
215976	High Street, Cubbington, (General Commercial)	39	31	52/55	56	42	63	56	42	0	0	B	1	G5	T	-	-	-	-	
215976	Queen Street, Cubbington, (Shopping)	39	31	52/55	56	42	63	56	42	0	0	B	1	G5	T	-	-	-	-	
215976	Queen Street, Cubbington, (Shopping)	39	31	52/55	56	42	63	56	42	0	0	B	1	G5	T	-	-	-	-	
216265	St. Mary's Church, Cubbington, (Church)	41	33	55/58	53	36	36	53	36	0	1	B	1	G3	T	-	-	-	-	
216416	Cubbington Church Of England Primary School, Church Hill, (Primary School)	42	32	55/58	45	28	31	46	32	1	5	B	1	G4	T	L	-	-	-	\$
216690	Oakdene Day Nursery, Coventry Road (Nursery)	50	42	62/65	48	35	46	51	42	3	7	B	1	G4	T	-	-	-	-	\$
231349	Bunkers Hill Farm, Welsh Road, Offchurch (Office)	50	41	63/66	61	43	50	61	45	0	2	B	2	G5	T	-	-	-	-	
231349	Old Tractor Shed, Welsh Road, Offchurch (General Commercial)	50	41	63/66	61	43	50	61	45	0	2	B	1	G5	T	-	-	-	-	
233947	Offchurch Village Hall, School	45	36	61/64	55	52	63	55	52	0	0	B	1	G3	T	-	-	-	-	

Assessment Location		Impact criteria										Significance criteria								Significant effect
ID	Area represented	Proposed Scheme only (Year 15 traffic)			Do nothing (Opening year baseline)			Do something (Opening year baseline + Year 15 traffic) ****		Change		Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Mitigation of effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **									
	Hill, Offchurch, (Hall)																			
233947	The Church Of St. Gregory, Village Street (Church)	45	36	61/64	55	52	63	55	52	0	0	B	1	G3	T	-	-	-	-	
234251	The Stag At Offchurch, Welsh Road, Offchurch (Restaurant)	46	37	60/63	50	42	54	51	43	1	1	B	1	G5	T	-	-	-	-	
234564	Cublington Wood Yard, Rugby Road (General Commercial)	59	51	63/67	59	47	55	59	51	0	4	B	1	G5	T	-	-	-	-	\$
234674	Grove Rise, Rugby Road, Weston Under Wetherley (Office)	38	30	47/50	54	42	50	54	42	0	0	B	1	G5	T	-	-	-	-	
235139	Offchurch Sports Club (Sports Club)	51	42	65/68	50	39	43	54	43	3	5	B	1	G5	T	L	-	-	-	\$
235157	Manor Farm, Hunningham Road (General Commercial)	48	39	61/64	41	31	39	48	39	8	8	B	2	G5	T	L	-	-	-	\$
235841	Long Itchington Road, Offchurch (Trade Distribution)	51	43	58/61	65	47	41	65	47	0	0	B	2	G5	T	H	-	-	-	

Direct impact - Summary

4.3.5 The operational airborne noise impacts identified in Table 1 are summarised in Table 2.

Table 2: Summary of operational airborne sound impacts

Receptor	Number of impacts		
	Minor	Moderate	Major
Residential properties	3	12	1
Non-residential properties	0	0	0
Quiet areas	None	None	None

4.4 Assessment of impacts and effects

Residential receptors: direct effects - individual buildings

4.4.2 The mitigation measures will reduce noise inside all dwellings such that it will not reach a level where it would significantly affect residents.

Residential receptors: direct effects –communities

4.4.3 The mitigation measures in this area will avoid airborne noise adverse effects on the majority of receptors, and at the following communities:

- Cubbington;
- Offchurch;
- Weston Under Wetherley; and
- The areas of Leamington Spa closest to the Proposed Scheme.

4.4.4 Taking account of the envisaged mitigation, Map Series SV-02 (Volume 5 Map book) shows the long term 40dB² night-time sound level contour from the operation of trains on the Proposed Scheme. The extent of the 40dB night-time sound level contour is equivalent to, or slightly larger than, the 50dB daytime contour³. In general, below these levels adverse effects are not expected.

4.4.5 Above 40dB during the night and 50dB during the day the effect of noise is dependent on the baseline sound levels in that area and the change in sound level (magnitude of effect) brought about by the Proposed Scheme. The airborne noise impacts and effects forecast for the operation of the scheme are presented on Map Series SV-02 (Volume 5 Map Book).

² Defined as the equivalent continuous sound level from 23:00 to 07:00 or $L_{pAeq,night}$

³ With the train flows described in the assumptions section of this CFA Report, the daytime sound level (defined as the equivalent continuous sound level from 07:00 to 23:00 or $L_{pAeq,day}$) from the Proposed Scheme would be approximately 10dB higher than the night-time sound level. The 40dB contour therefore indicates the distance from the Proposed Scheme at which the daytime sound level would be 50dB.

4.4.6 Approximately 15 isolated properties within the area have been identified as being subject to an observed adverse noise effect; these effects are likely to be considered as an effect on the acoustic character of the area such that there is a perceived change in the quality of life. However, as the affected properties are spatially remote from larger defined residential areas, are subject to smaller magnitudes of noise effect, or are small in number, the effects are not considered to be significant.

4.4.7 The changes in noise levels are likely to affect the acoustic character of the area such that there is a perceived change in the quality of life and are considered to be significant when assessed on a community basis⁴ taking account of the local context. However, as a result of the avoidance and mitigation measures included within the Proposed Scheme, the assessment has not identified any adverse effects that are considered to be significant on a community basis in this area.

Residential receptors: indirect effects

4.4.8 The transport assessment presented in Volume 5: Appendix TR-001-000, has been used to identify those roads or railways within this study area where the alignment remains as at present, but a change in flow or composition is identified which is greater than the screening criteria defined in Volume 5: Appendix SV-001-000. No roads or railways which exceed the criteria defined in Volume 5: Appendix SV-001-000 have been identified in this study area.

4.4.9 The assessment of operational noise and vibration indicates that significant indirect effects on residential receptors are unlikely to occur in this area.

Non-residential receptors: direct effects

4.4.10 The assessment of operational noise and vibration indicates that significant direct effects on non-residential receptors are unlikely to occur in this area.

Non-residential receptors: indirect effects

4.4.11 The transport assessment presented in Volume 5: Appendix TR-001-000, has been used to identify those roads or railways within this study area where the alignment remains as at present, but a change in flow or composition is identified which is greater than the screening criteria defined in Volume 5: Appendix SV-001-000. No roads or railways which exceed the criteria defined in Volume 5: Appendix SV-001-000 have been identified in this study area.

4.4.12 The assessment of operational noise and vibration indicates that significant indirect effects are unlikely to occur on non-residential receptors in this area.

⁴ Further information is contained in Volume 1.

Cumulative effects

- 4.4.13 Details of properties being currently developed which were afforded planning approval before the safeguarding date are presented in Volume 5: Appendix CToo4-000. Within this area, the operational sound, noise or vibration associated with these developments in conjunction with the operation of the Proposed Scheme do not result in any significant cumulative effects.